

**(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)**

**(19) World Intellectual Property  
Organization  
International Bureau**



**(43) International Publication Date**  
**19 February 2004 (19.02.2004)**

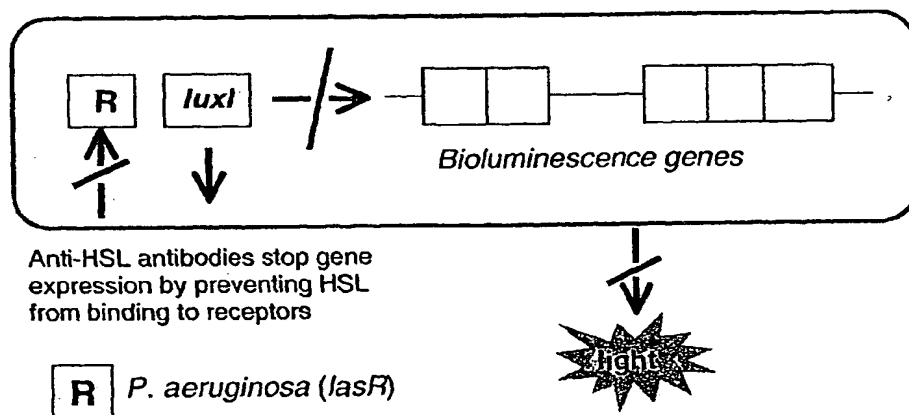
## PCT

**(10) International Publication Number**  
**WO 2004/014423 A1**

- (51) **International Patent Classification<sup>7</sup>:** **A61K 39/395**,  
39/40, A61P 31/04
- (21) **International Application Number:**  
PCT/GB2003/003529
- (22) **International Filing Date:** 13 August 2003 (13.08.2003)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
0218951.2 13 August 2002 (13.08.2002) GB  
0306783.2 24 March 2003 (24.03.2003) GB
- (71) **Applicant (for all designated States except US):** **HAPTOGEN LTD** [GB/GB]; Polwarth Building, Foresterhill, Aberdeen AB25 2ZD (GB).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **CHARLTON, Keith, Alan** [GB/GB]; Haptogen Ltd, Polwarth Building, Foresterhill, Aberdeen AB25 2ZD (GB). **PORTER, Andrew, Justin, Radcliffe** [GB/GB]; Haptogen Ltd, Polwarth Building, Foresterhill, Aberdeen AB25 2ZD (GB).
- (54) **Agents:** **BASSIL, Nicholas, Charles et al.;** Kilburn & Strode, 20 Red Lion Street, London WC1R 4PJ (GB).
- (81) **Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Declarations under Rule 4.17:**
- *as to the identity of the inventor (Rule 4.17(i)) for the following designations* AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,

[Continued on next page]

**(54) Title: METHODS FOR THE TREATMENT OF AN INFECTIOUS BACTERIAL DISEASE WITH AN ANTI-LACTONE OR LACTONE DERIVED SIGNAL MOLECULES ANTIBODY**



**(57) Abstract:** The present invention relates to methods for the control of virulence of infectious bacteria by modulating the extra-cellular concentration of bacterial cell signalling molecules. Derivatives of cell signalling molecules are conjugated to suitable carrier proteins and used to isolate high affinity receptors recognising the native signal molecule(s). By binding to signalling molecules, the receptors reduce and maintain extra-cellular concentrations of signal molecules below the threshold level that would otherwise result in certain opportunistic pathogens adopting a virulent form, and can transform virulent organisms to non-virulent states. These receptors have applications for the treatment of individuals with susceptibility to infection, the treatment of patients with existing infections, in disease monitoring and management, and in related applications where the host for infection is an animal or plant.

**WO 2004/014423 A1**